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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s) : FEHRENBACH et al.
Serial No. : 10/056,243
Filed : January 23, 2002
For : COAXIAL LINE PLUG-TYPE CONNECTION WITH
INTEGRATED GALVANIC ISOLATION
Art Unit : To Be Assigned
Examiner : To Be Assigned

Assistant Commissioner
for Patents
Washington, D.C. 20231

PRELIMINARY AMENDMENT AND
37 C.F.R. § 1.125 SUBSTITUTE SPECIFICATION STATEMENT

SIR:

Please amend the above-identified application before examination, as set forth below.

IN THE SPECIFICATION AND ABSTRACT:

In accordance with 37 C.F.R. § 1.121(b)(3), a Substitute Specification (including the Abstract, but without claims) accompanies this response. It is respectfully requested that the Substitute Specification (including Abstract) be entered to replace the Specification of record.

IN THE CLAIMS:

Without prejudice, please cancel original claims 1 to 28 and please add new claims 29 to 56 as follows:

--29. (New) A coaxial line plug-in connection for connecting a first end of a first coaxial line and a second end of a second coaxial line, wherin each of the first and second coaxial lines has an inner conductor and an outer conductor and wherein the outer conductors surround the inner conductors, the coaxial line plug-in connection comprising:

a socket;
a plug; and
a separating element;

wherein the separating element is of a dielectric material for galvanically separating at least the outer conductors of the first and second coaxial lines; and

wherein the socket and the plug couple the first end and the second ends for transmitting microwave signals of a wavelength λ between the first and second coaxial lines.

30. (New) The coaxial line plug-in connection according to claim 29, further comprising:

a coupling zone;

wherein the plug has a radially exterior lateral wall face;

wherein the socket has a radially interior lateral wall face; and

wherein, when the first end and the second end are inserted in the coaxial line plug-in connection, the radially exterior lateral wall face and radially interior lateral wall face lie opposite in the coupling zone and are spaced apart by the separating element.

31. (New) The coaxial line plug-in connection according to claim 29, wherein the separating element is arranged in the socket.

32. (New) The coaxial line plug-in connection according to claim 29, wherein the separating element consists of at least one material selected from the group consisting of PTFE, ceramics and glass.

33. (New) The coaxial line plug-in connection according to claim 30, wherein the separating element is arranged ring-shaped in the coupling zone between the exterior lateral wall face of the plug and the interior lateral wall face of the socket.

34. (New) The coaxial line plug-in connection according to claim 33, wherein the ring-shaped separating element has a minimum wall thickness of 0.5 mm.

35. (New) The coaxial line plug-in connection according to claim 30,

wherein the coupling zone has an axial direction;

wherein the coupling zone receives the separating element; and

wherein the coupling zone has a length of $\lambda/4$ in the axial direction.

36. (New) A coaxial line plug-in connection for coupling a first end of a first coaxial line and a second end of a second coaxial line, wherein each of the first and second coaxial lines has an inner conductor and an outer conductor and wherein the outer conductors of the first and second coaxial lines surround the inner conductors of the first and second coaxial lines, the coaxial line plug-in connection comprising:

- a socket;
- a plug; and
- a separating element;

wherein the plug is comprised of one of the first and second ends;

wherein the separating element is of a dielectric material for galvanically separating at least the outer conductors of the first and second coaxial lines; and

wherein the socket and the plug couple the first end and the second ends for transmitting microwave signals of a wavelength λ between the first and second coaxial lines.

37. (New) The coaxial line plug-in connection according to claim 36, further comprising a coupling zone;

- wherein the plug has a radially exterior lateral wall face comprised of the outer conductor, beyond which protrudes the inner conductor in a pin-shape;
- wherein the socket has a radially interior lateral wall face; and

wherein, in an inserted state, the radially exterior lateral wall face and radially interior lateral wall face lie opposite each other in the coupling zone spaced apart by the separating element.

38. (New) The coaxial line plug-in connection according to claim 36, wherein the separating element is arranged in the socket.

39. (New) The coaxial line plug-in connection according to claim 36, wherein the separating element consists of at least one material selected from the group consisting of PTFE, ceramics and glass.

40. (New) The coaxial line plug-in connection according to claim 36, further comprising:
a fastening flange which is attached to the plug;
wherein an inserted state of the socket and the plug is ensured by means of the fastening flanged attached to the plug.

41. (New) The coaxial line plug-in connection according to claim 37,
wherein a further dielectric material is arranged ring-shaped in the coupling zone between the exterior lateral wall face of the plug and the interior lateral wall face of the socket.

42. (New) The coaxial line plug-in connection according to claim 41,
wherein the further ring-shaped dielectric material has a minimum wall thickness of 0.5 mm.

43. (New) The coaxial line plug-in connection according to claim 37,
wherein the coupling zone has an axial direction and receives the separating element;
and
wherein the coupling zone has an optimum length of $\lambda/4$ in the axial direction.

44. (New) A coaxial line plug-in connection for coupling a first end of a first coaxial line and a second end of a second coaxial line, wherein each of the first and second coaxial lines has an inner conductor and an outer conductor and wherein the outer conductors of the first and second coaxial lines surround the inner conductors of the first and second coaxial lines, the coaxial line plug-in connection comprising:
a socket;
a plug; and
at least one separating element;
wherein the plug is comprised of one of the first and second ends;
wherein the at least one separating element is of a dielectric material for galvanically separating the inner conductors and the outer conductors of the first and second coaxial lines; and
wherein the socket and the plug couple the first end and the second ends for

transmitting microwave signals of a wavelength λ between the first and second coaxial lines.

45. (New) The coaxial line plug-in connection according to claim 44, further comprising:

a first and a second coupling zone;

wherein the at least one separating element comprises a first separating element and a second separating element;

wherein the plug has a radially exterior lateral wall face comprised of a first outer conductor of the outer conductors of the first and second coaxial lines;

wherein a first inner conductor of the inner conductors of the first and second coaxial lines protrudes beyond the first outer conductor in a pin-shape;

wherein the socket has a first radially interior lateral wall face and a second radially interior lateral wall face;

wherein the radially exterior lateral wall face of the plug and the first radially interior lateral wall face of the socket, in an inserted state, lie opposite each other spaced apart by the first separating element in the first coupling zone, whereto follows the second coupling zone in which the first inner conductor lies opposite the second interior lateral wall face of the socket spaced apart by the second separating element.

46. (New) The coaxial line plug-in connection according to claim 44, wherein the at least one separating element is arranged in the socket.

47. (New) The coaxial line plug-in connection according to claim 44, wherein the at least one separating element consists of at least one material selected from the group consisting of PTFE, ceramics and glass.

48. (New) The coaxial line plug-in connection according to claim 44, further comprising

a fastening flange;

wherein the fastening flange is attached to the plug; and

wherein an inserted state of the socket and the plug is ensured by means of the fastening flange attached to the plug.

49. (New) The coaxial line plug-in connection according to claim 45, wherein the first and second separating elements are each arranged ring-shaped.

50. (New) The coaxial line plug-in connection according to claim 45, wherein the pin-shaped inner conductor is surrounded by a third separating element.

51. (New) The coaxial line plug-in connection according to claim 49, wherein the first and second separating elements have a minimum wall thickness of 0.5 mm.

52. (New) The coaxial line plug-in connection according to claim 45,
wherein the first and second coupling zones have first and second axial directions;
wherein the first and second coupling zones receive the at least one coupling element;
and
wherein the first and second coupling zones each have an optimum length of $\lambda/4$ in
the first and second axial directions.

53. (New) A socket for coupling two coaxial lines each comprised of an inner conductor and an outer conductor surrounding the inner conductor, and which are suited for transmitting microwave signals of the wavelength λ , wherein a first coaxial line of the two coaxial lines can be plugged into the socket, the socket comprising:
at least one separating element which is arranged in the socket;
wherein the socket is comprised of a dielectric material; and
wherein a galvanic separation of the outer and inner conductors is effected by the at least one separating element.

54. (New) The socket according to claim 53, wherein the socket is directly attached to a waveguide for centrically coupling the microwave signals into the waveguide.

55. (New) A plug comprised of an outer conductor and an inner conductor protruding beyond the outer conductor in a pin-shape, for coupling two coaxial lines each comprised of an inner conductor and an outer conductor surrounding the inner conductor, and which are suited for transmitting microwave signals of a wavelength λ , the pin-shaped inner conductor

being surrounded by a separating element of a dielectric material, whereby a galvanic separation of the inner conductors of the coaxial line is effected.

56. (New) A galvanic separation using separating elements of dielectric materials in a socket or a plug for coupling ends of a coaxial line to be connected with each other, each comprised of an inner conductor and an outer conductor surrounding the inner conductor, and which are suited for transmitting microwave signals of the wavelength λ —.

Remarks

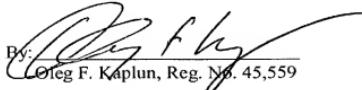
This Preliminary Amendment cancels without prejudice original claims 1 to 28 and in the underlying Application Number 10/056,243, and adds without prejudice new claims 29 to 56. The new claims conform the claims to U.S. Patent and Trademark Office rules and do not add new matter to the application.

In accordance with 37 C.F.R. § 1.121(b)(3), the Substitute Specification (including the Abstract, but without the claims) contains no new matter. The amendments reflected in the Substitute Specification (including Abstract) are to conform the Specification and Abstract to U.S. Patent and Trademark Office rules or to correct informalities. As required by 37 C.F.R. § 1.121(b)(3)(iii) and § 1.125(b)(2), a Marked Up Version Of The Substitute Specification comparing the Specification of record and the Substitute Specification also accompanies this Preliminary Amendment. In the Marked Up Version, shading indicates added text and brackets indicated deleted text. Approval and entry of the Substitute Specification (including Abstract) is respectfully requested.

Applicants assert that the subject matter of the present application is new, non-obvious, and useful. Prompt consideration and allowance of the application are respectfully requested.

Respectfully Submitted,

Dated: Apr. 18, 2002

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